

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A catheter system, comprising:
a catheter having a distal end, a proximal end, and a main vessel guidewire lumen that is adapted to receive a main vessel guidewire, at least one radiopaque marker positioned on the catheter;
a side member disposed adjacent and fixedly attached to at least one location on the catheter, the side member having a distal end, a proximal end, and a branch vessel guidewire lumen that is adapted to receive a branch vessel guidewire, at least one radiopaque marker positioned on the side member, wherein the at least one radiopaque marker positioned on the catheter and the at least one radiopaque marker positioned on the side member are juxtaposed in a first configuration and separated in a second configuration; and
a stent having a side hole through a wall thereof, the stent being disposed over the catheter,
wherein a distal portion of the side member is disposed beneath at least a portion of the stent while being adjacent to the catheter, and the distal portion of the side member which is disposed beneath the at least a portion of the stent is capable of being moveable with respect to the catheter.
2. (Previously Presented) The catheter system of claim 1, further comprising:
at least one radiopaque marker positioned on the catheter; and
at least one radiopaque marker positioned on the side member.
3. (Previously Presented) The catheter system of claim 2, wherein at least one radiopaque marker on the catheter is adjacent at least one radiopaque marker on the side member.
4. (Previously Presented) The catheter system of claim 2, wherein the radiopaque marker on the catheter and on the side member are positioned adjacent the side hole in the stent.

5. (Previously Presented) The catheter system of claim 2, wherein the at least one radiopaque marker on the catheter comprises radiopaque markers positioned at a proximal end and a distal end of the stent.

6. (Original) The catheter system of claim 2, wherein the at least one marker on the side member is positioned at the distal end of the side member.

7. (Original) The catheter system of claim 1, wherein the side member comprises a flexible side sheath.

8. (Previously Presented) The catheter system of claim 1, further comprising a branch stent deployment device having a balloon, a guidewire lumen, an inflation lumen that is adapted to supply a fluid to inflate the balloon, and a branch vessel stent disposed over the balloon, wherein the branch stent deployment device is adapted to be advanced over the branch stent guidewire.

9. (Canceled)

10. (Previously Presented) The catheter system of claim 1, wherein the distal end of the side member extends out of the side hole of the stent.

11. (Original) The catheter system of claim 1, further comprising a balloon disposed at the distal end of the side member.

12. (Original) The catheter system of claim 1, wherein the distal end of the side member is tapered.

13. (Original) The catheter system of claim 1, wherein the distal end of the side member is fabricated from a fluoroscopically visible material.

14. (Original) The catheter system of claim 1, wherein the catheter body and the side member are fabricated from Pebax and graphite.

15. (Original) The catheter system of claim 1, further comprising a branch stent positioned on the side member.

16. (Previously Presented) The catheter system of claim 46, wherein the catheter further includes a balloon inflation lumen, and further comprising a proximal end hub having a main vessel guidewire channel that is coupled to the main vessel guidewire lumen, a branch vessel guidewire channel that is coupled to the branch vessel guidewire lumen, and a balloon inflation port that is coupled to the balloon inflation lumen.

17. (Previously Presented) The catheter system of claim 16, wherein the first and second guidewire channels are separated by about zero to 20°.

18. (Previously Presented) The catheter system of claim 1, wherein the distal end of the side member is unattached to the distal end of the catheter.

19. (Previously Presented) The catheter system of claim 18, wherein the length over which the distal end of the side member is unattached to the distal end of the catheter is approximately 2 to approximately 10 cm.

20. (Canceled)

21. (Canceled)

22. (Canceled)

23. (Canceled)

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25. (Canceled)

26. (Canceled)

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31. (Canceled)

- 32. (Canceled)
- 33. (Canceled)
- 34. (Canceled)
- 35. (Canceled)
- 36. (Canceled)
- 37. (Canceled)
- 38. (Canceled)
- 39. (Canceled)
- 40. (Canceled)
- 41. (Canceled)
- 42. (Previously Presented) The catheter system of claim 1, wherein the at least one location is at or near the proximal end of the catheter.
- 43. (Previously Presented) The catheter system of claim 42, wherein the at least one location is along a length from the proximal end of the catheter to a location proximal to the stent.
- 44. (Previously Presented) The catheter system of claim 1, wherein the at least one location is spaced a distance from and is proximal to the stent.
- 45. (Previously Presented) The catheter system of claim 1, further comprising an expander disposed near the distal end of the catheter and wherein the stent is disposed over the expander such that upon expansion of the expander, the stent is configured to expand.
- 46. (Previously Presented) The catheter system of claim 45, wherein said expander is a balloon.
- 47. (Previously Presented) The catheter system of claim 1, wherein an outer diameter of the catheter is different than an outer diameter of the side member.

48. (Previously Presented) The catheter system of claim 1, wherein the side member has a circular cross-section.

49. (Canceled)

50. (Previously Presented) A catheter system, comprising:
a catheter having a distal end, a proximal end, a main vessel guidewire lumen that is adapted to receive a main vessel guidewire, and a first radiopaque marker thereon;
a side member disposed adjacent the catheter, the side member having a distal end, a proximal end, a branch vessel guidewire lumen that is adapted to receive a branch vessel guidewire, and a second radiopaque marker thereon; and

a stent having a side hole through a wall thereof, the stent being disposed over the catheter,

wherein a distal portion of the side member is disposed beneath at least a portion of the stent and is capable of being positioned within a side branch, and wherein said first and second radiopaque markers are juxtaposed in a first configuration and separated in a second configuration at the side branch.

51. (Previously Presented) The catheter system of claim 50, wherein the side member comprises a flexible side sheath.

52. (Previously Presented) The catheter system of claim 50, further comprising a branch stent deployment device having a balloon, a guidewire lumen, an inflation lumen that is adapted to supply a fluid to inflate the balloon, and a branch vessel stent disposed over the balloon, wherein the branch stent deployment device is adapted to be advanced over the branch stent guidewire.

53. (Previously Presented) The catheter system of claim 50, wherein the distal end of the side member extends out of the side hole of the stent.

54. (Previously Presented) The catheter system of claim 50, further comprising a balloon disposed at the distal end of the side member.

55. (Previously Presented) The catheter system of claim 50, wherein the distal end of the side member is tapered.

56. (Previously Presented) The catheter system of claim 50, wherein the distal end of the side member is fabricated from a fluoroscopically visible material.

57. (Previously Presented) The catheter system of claim 50, wherein the catheter body and the side member are fabricated from Pebax and graphite.

58. (Previously Presented) The catheter system of claim 50, further comprising a branch stent positioned on the side member.

59. (Previously Presented) The catheter system of claim 50, further comprising an expander disposed near the distal end of the catheter and wherein the stent is disposed over the expander such that upon expansion of the expander, the stent is configured to expand.

60. (Previously Presented) The catheter system of claim 59, wherein said expander is a balloon.

61. (Previously Presented) The catheter system of claim 60, wherein the catheter further includes a balloon inflation lumen, and further comprising a proximal end hub having a main vessel guidewire channel that is coupled to the main vessel guidewire lumen, a branch vessel guidewire channel that is coupled to the branch vessel guidewire lumen, and a balloon inflation port that is coupled to the balloon inflation lumen.

62. (Previously Presented) The catheter system of claim 61, wherein the first and second guidewire channels are separated by about zero to 20°.

63. (Previously Presented) The catheter system of claim 50, wherein the distal end of the side member is unattached to the distal end of the catheter.

64. (Previously Presented) The catheter system of claim 63, wherein the length over which the distal end of the side member is unattached to the distal end of the catheter is approximately 2 to approximately 10 cm.

65. (Previously Presented) The catheter system of claim 50, wherein the side member is fixedly attached to at least one location on the catheter.

66. (Previously Presented) The catheter system of claim 65, wherein the at least one location is at or near the proximal end of the catheter.

67. (Previously Presented) The catheter system of claim 65, wherein the at least one location is along a length, from the proximal end of the catheter to a location proximal to the stent.

68. (Previously Presented) The catheter system of claim 65, wherein the at least one location is spaced a distance from and is proximal to the stent.

69. (Previously Presented) The catheter system of claim 50, further comprising a connector coupled to the catheter body, wherein the side member extends through the connector so as to be slidably positionable with respect to the catheter.

70. (Previously Presented) The catheter system of claim 50, wherein an outer diameter of the catheter is different than an outer diameter of the side member.

71. (Canceled)